

to all parts of the Pacific States, terminating the drouth and a serious water shortage in many parts of California.

On a number of occasions storm warnings were issued for the Washington and Oregon coast and for the north California coast. No storms occurred without adequate and timely warnings. Frosts were frequent in California and called for the issue of frost and freezing temperature warnings. The month was notable for the prolonged period of low temperature and fog over the valleys of northern California. At such times the temperatures on the valley floors would be near or below freezing, while at higher altitudes, as for example at Mount Hamilton, the temperatures were notably higher, at times as much as 10° to 15°. A special forecast of the coming of rains near the end of the month was issued for the citrus regions. Rain forecasts are greatly appreciated by the growers, as adequate warnings permit prompt picking of fruit for immediate future demands. Picking is carried on with difficulty when the ground is thoroughly wetted.—*E. H. Bowie.*

627.41 (73) RIVERS AND FLOODS

By H. C. FRANKENFIELD

Heavy rains between January 4 and 7 over Mississippi and Alabama necessitated warnings of moderate floods for the Pearl River system of Louisiana and Mississippi and the Tombigbee, Black Warrior and lower Alabama Rivers of Alabama. The floods occurred as forecast, and the resulting damage was very small.

A pronounced storm of southwestern type was attended by heavy rains on January 16-17 in the lower Ohio Valley and the Gulf States, continuing January 17-18, and extending through the South and Middle Atlantic States. On January 18-19, the rains covered New England, but in more moderate quantity. Although the temperatures were high and some snow was melted, there were no floods reported in New England and the Middle Atlantic States. To the southward and southwestward, however, floods were general, yet not of serious character. They occurred as a rule between January 18 and 22 (January 17 in the lower Altamaha River). The Santee flood was prolonged as usual and the river was still above the flood stage at the close of the month. The usual warnings were issued for all the floods, and they were well verified, except over certain sections of South Carolina and Alabama, where the impounding of water in one instance, and the release of impounded water in another, prevented the rivers below from reaching their indicated crests. The reported losses due to these southern floods was only \$14,070, almost entirely through enforced suspension of certain business activities for a few days, while the value of property saved through the warnings was given as \$38,025.

General rains from the Ohio Valley eastward and southward between January 17 and 22 were followed by a decided rise in all the rivers of the Ohio Basin, but flood stages were not reached except in the Ohio River between Evansville, Ind., and Shawneetown, Ill., the Green River of Kentucky, and in a few smaller tributaries. The usual warnings were issued and the reported loss and damage was only \$5,300, while property worth \$50,000 was saved through the warnings.

An ice gorge that had formed early in January at Wolf Creek, Ky., broke and moved a little during the night of the 18th and 19th. It moved for the second time

about noon of January 20, but soon reformed and held until some time during January 22. The heavy ice from this gorge passed Evansville during the afternoon of January 23, and by January 26 the ice had reached the mouth of the river.

A more serious condition of affairs prevailed in the upper Allegheny River of Pennsylvania. Much ice had formed during the cold days of the last week of December, 1925, but rains and high temperatures soon caused it to break, and by the night of January 7 ice was running from headwaters to Pittsburgh. On January 8 a gorge formed at a small island about 15 miles below Franklin, and one and one-half miles below Brandon, Pa. The river at Franklin rose from 4 feet on January 8 to 9 feet on January 10, when more cold weather froze the upper river. On January 18, the "southwestern" storm loosened the upper river ice and it piled above the original gorge, raising the river until at 5 a. m., January 20, the stage at Franklin was 20.3 feet, 5.3 feet above the flood stage. At 6 a. m. of the same date the ice began to move, but piled up still higher at Brandon, the gorge extending 6 miles above Brandon. The river at Franklin fell slowly and on January 24 the stage was 13.8 feet, the water running under the ice. At the end of the month the situation was serious with the stage at Franklin 10.1 feet and the river above the gorge covered with 6 or 8 inches of solid ice. Thus far, however, while the gorge has caused considerable inconvenience, the losses will probably not exceed \$18,000.

Local floods occurring about the same time in portions of the Wabash River drainage in Indiana, the smaller rivers of Arkansas, and in the Sulphur River of Texas were well forecast, and no damage of consequence was reported.

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
<i>Atlantic drainage</i>					
Schuylkill, Reading, Pa.	<i>Feet</i> 10	19	19	<i>Feet</i> 11.0	19
James, Columbia, Va.	18	20	20	18.9	20
Roanoke:					
Randolph, Va.	21	20	20	21.9	20
Weldon, N. C.	30	19	22	37.3	21
Cape Fear, Elizabethtown, N. C.	22	21	21	22.0	21
Santee:					
Rimini, S. C.	12	21	(1)	14.3	25
Ferguson, S. C.	12	23	(1)	13.4	26
Broad, Blairs, S. C.	15	19	20	17.6	19
Saluda:					
Pelzer, S. C.	7	18	20	10.2	19
Chappells, S. C.	14	20	22	15.5	20
Broad, Carlton, Ga.	11	18	19	13.0	18
Altamaha, Everett City, Ga.	10	17	21	10.1	20
<i>East Gulf drainage</i>					
Alabama, Selma, Ala.	35	7	10	36.8	9
		21	24	35.9	22-23
Tombigbee, Lock No. 4, Demopolis, Ala.	39	7	9	39.4	8-9
		20	30	48.2	26
Black Warrior, Lock No. 10, Tuscaloosa, Ala.	46	18	20	49.4	19
Pearl:					
Jackson, Miss.	20	10	11	20.2	11
		18	(1)	26.2	19
Columbia, Miss.	18	6	6	18.0	6
West Pearl, Pearl River, La.	13	7	16	16.0	9
		21	(1)	15.1	23
<i>Great Lakes drainage</i>					
St. Joseph, Montpelier, Ohio.	10	20	20	10.3	20
<i>Mississippi drainage</i>					
Allegheny, Franklin, Pa.	15	20	23	20.3	20
Ohio:					
Evansville, Ind.	35	25	30	38.5	28-29
Dam No. 48, Cypress, Ind.	35	26	30	37.0	29
Mount Vernon, Ind.	35	27	31	36.8	29
Shawneetown, Ill.	35	27	31	36.5	29
Little Kanawha, Glenville, W. Va.	23	22	22	23.3	22

¹ Continued at end of month.

² Ice gorge.

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
<i>Mississippi drainage</i>					
Green:	<i>Feet</i>			<i>Feet</i>	
Lock No. 6, Brownsville, Ky.	30	23	26	33.6	24
Lock No. 4, Woodbury, Ky.	33	22	28	41.6	25
Lock No. 2, Rumsey, Ky.	34	25	(¹)	38.3	29
Barren, Bowling Green, Ky.	20	22	25	26.8	24
Wabash, Lafayette, Ind.	11	19	21	13.0	20
Tippecanoe, Rochester, Ind.	6	19	19	6.0	19
White, West Fork, Edwardsport, Ind.	15	21	23	15.9	22
Big Pigeon, Newport, Tenn.	6	18	19	8.4	18
Grand, Chillicothe, Mo.	18	5	6	³ 20.1	6
Petit Jean, Danville, Ark.	20	22	25	22.6	24
Black:					
Corning, Ark.	11	22	(¹)	12.3	25
Black Rock, Ark.	14	22	23	15.0	22
Cache, Patterson, Ark.	9	29	(¹)	9.8	31
Sulphur:					
Ringo Crossing, Tex.	20	22	24	22.7	23
Finley, Tex.	24	25	30	24.5	27
Ouachita:					
Arkadelphia, Ark.	18	22	23	19.7	22
Camden, Ark.	30	24	30	35.1	27

¹ Continued at end of month.² Estimated.

MEAN LAKE LEVELS DURING JANUARY, 1926

BY UNITED STATES LAKE SURVEY

(Detroit, Mich., February 8, 1926)

The following data are reported in the "Notice to Mariners" of the above date:

Data	Lakes ¹			
	Superior	Michigan and Huron	Erie	Ontario
Mean level during January, 1926:	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>
Above mean sea level at New York.....	600.46	577.37	570.02	244.28
Above or below—				
Mean stage of December, 1925....	-0.39	-0.17	-0.37	-0.27
Mean stage of January, 1925....	-0.60	-0.85	-0.60	+0.06
Average stage for January last 10 years.....	-1.50	-2.26	-1.49	-0.87
Highest recorded January stage....	-2.32	-5.30	-3.53	-3.32
Lowest recorded January stage....	-0.42	-0.85	-0.60	+0.48
Average departure (since 1860) of January level from December level.....	-0.25	-0.04	-0.02	+0.03

¹ Lake St. Clair's level: In January, 1926, 571.84 feet.

INFLUENCE OF WEATHER ON CROPS AND FARM OPERATIONS JANUARY, 1926

By J. B. KINCER

General summary.—Because of the frequent rainfall which kept the soil too wet to work during much of the month in the Southern States, farm activities made rather

slow progress during January in that section of the country. At the close of the month the preparation for spring planting was about two weeks behind an average season in south Atlantic districts. Stream flow was increased materially, however, and some bottom lands in the extreme Southeast were flooded. There was also some damage by freezing weather which extended, about the middle of the month, into northern Florida, with some damaging frosts as far south as the southern division.

In the west Gulf area conditions were generally more favorable for farming operations, while stock interests were mostly favored throughout the Great Plains and in the grazing districts to the westward, except that much range was snow covered during most of the month in Wyoming and some adjoining sections which necessitated heavy feeding. Near the close of the month very beneficial rains occurred in Pacific coast sections, and the long drought that had prevailed in California was effectually relieved in most parts of the State.

Small grains.—In the Winter Wheat Belt the weather was mostly favorable, although a snow cover during much of the time was very light or entirely lacking. Temperatures were mostly mild, however, without materially harmful thawing and freezing conditions, and wheat made generally satisfactory progress, except the late-sown wheat in the eastern half of the belt. It did well in the far Northwestern States, and cereals made generally satisfactory advance in the South.

Ranges, pastures, and livestock.—Snowfall over the winter range districts in parts of the Rocky Mountain area necessitated heavy feeding, and there was considerable shrinkage of livestock, but otherwise the weather was generally favorable, and both the range and livestock continued in good condition for the season. It was especially favorable over the northern Great Plains where the mild weather and open range permitted stock to graze freely during much of the month, with a consequent saving of feed.

Miscellaneous crops.—There was considerable interruption to the preparation of soil for spring planting in the Southeastern States where some sections had twice the normal rainfall for the month. At the close, cabbage was reported about two weeks behind an average season in southern Alabama, while the planting of truck was backward in central Gulf districts. In general, however, winter truck crops made good progress in the west Gulf section, and were much benefited in California by rains during the latter part of the month. Some orchard heating was necessary in California, but there was little or no damage to citrus in that State.